DATA MANAGEMENT PLAN

Data Policy Compliance

The project investigators will comply with the data management and dissemination policies described in the *NSF Award and Administration Guide* (AAG, Chapter VI.D.4) and the *NSF Division of Ocean Sciences Sample and Data Policy*.

Description of Data Types

The project will produce several observational and experimental datasets, described in the list below. Observational data will be collected during Year 1 to describe seasonal patterns prior to and during experiments in Years 2 and 3.

Observational Datasets:

1. Tide pool attributes: Data will include tide height, perimeter, volume, water surface area, and bottom surface area. File type: Excel file converted to .csv. Repository: BCO-DMO.
2. Tide pool metabolism: Data will include measurements of temperature, salinity, oxygen, light, carbonate chemistry parameters, and rates of photosynthesis, respiration, and calcification to evaluate daily and seasonal variation in gross and net community productivity, as well as tissue %C, %N, and C:N of tide pool macrophytes. File type: Excel file converted to .csv. Repository: BCO-DMO.
3. Diversity and abundance: Prior to experiments, we will survey tide pools for diversity and abundance (cover, count) of sessile and mobile invertebrates and macrophytes. File type: Excel file converted to .csv. Repository: BCO-DMO.

Experimental Datasets:

1. Tide pool metabolism: These data will be collected to evaluate effects of factorial experimental manipulations of CO_2 and temperature on ecosystem functioning. Data will include temperature, salinity, oxygen, light, carbonate chemistry parameters, and rates of photosynthesis, respiration, and calcification to evaluate daily and seasonal variation in gross and net community productivity, as well as tissue %C, %N, and C:N of tide pool macrophytes. File type: Excel file converted to .csv. Repository: BCO-DMO.
2. Diversity and abundance: During our experiments, we will survey tide pools for diversity and abundance (cover, count) of sessile and mobile invertebrates and macrophytes to assess population and community responses to CO_2 and temperature increases. File type: Excel file converted to .csv. Repository: BCO-DMO.

Data and Metadata Formats and Standards

Data will be entered into Excel and converted to .csv files. Data will include date, time, location, and experimental treatment. Metadata will be prepared in accordance with BCO-DMO conventions (i.e., using the BCO-DMO metadata forms) and will include detailed descriptions of collection and analysis procedures. In addition, all of our R code for this project will be made publicly available via GitHub and a copy deposited in the BCO-DMO.

Data Storage and Access During the Project
The investigators will store project data on laboratory computers that are backed up to both onsite and offsite hard drives. PI Sorte will establish an account with UCI Google Groups for data sharing and collaboration among investigators.

Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution
The project investigators will work with BCO-DMO data managers to make project data available online in compliance with the NSF OCE Sample and Data Policy. Data, samples, and other information collected under this project can be made openly available without restriction once submitted to the public repositories.

Data produced by this project may be of interest to chemical and biological oceanographers and climate scientists studying the impacts of climate change on coastal marine systems. We will adhere to and promote the standards, policies, and provisions for data and metadata submission, access, re-use, distribution, and ownership as prescribed by the BCO-DMO Terms of Use (http://www.bco-dmo.org/terms-use).

Plans for Archiving
BCO-DMO will ensure that project data are submitted to the appropriate national data archives. PI Sorte will work with BCO-DMO to ensure that data are archived appropriately and that proper and complete documentation are archived along with the data.

Roles and Responsibilities
Each PI will be responsible for maintaining two archives of all data sets immediately following collection and sharing data among the project participants in a timely fashion. PI Sorte will coordinate the overall data management and sharing process and will submit the project data to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) who will be responsible for forwarding these data and metadata to the appropriate national archives.